Lesson 7-6 · Session 1

Distance Between Points on a Grid

Name _____ Date _____ Period _____

Maryland Standard 6.NOS.9 · Learning target — I can find the distance between two points that share a coordinate.

Show a model, calculation, or explanation. Answer every part and label units when needed.

Exercises 1–12 earn 1 point for a correct response and 1 for supporting work. Spiral Review and Test Practice earn 1 point each.

Learn from a model

REMEMBER

- When two points share the same x-coordinate or same y-coordinate, find the distance using the difference (absolute value) between the other coordinates.
- Count grid squares to check your answer.
- Watch out — distance uses the coordinate that changes, not the one that stays the same.
- Check it — count the units on a sketch to confirm your arithmetic.

WORKED EXAMPLE

Finding the Distance Between Two Points on a Vertical Line On a map where each unit is one kilometer, find the distance from J(−4.5, 8.5) to K(−4.5, −3.5).

Step 1 The x-coordinates match, so both points sit on one vertical line.

Step 2 The y-coordinates have different signs, so the trip crosses the x-axis.

Step 3 Distance from 0 for each y-coordinate: |8.5| = 8.5 and |−3.5| = 3.5

Step 4 Join the two distances: 8.5 + 3.5 = 12

Answer The points are 12 units apart, so the trip is 12 kilometers straight up and down.

Practice

1. Find the distance between (2, 3) and (2, −5) (same x-coordinate).

Answer _____

SHOW YOUR THINKING

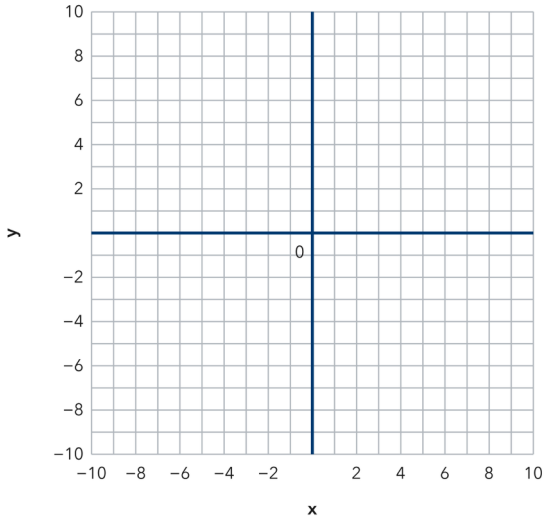
2. Find the distance between (−4, 1) and (6, 1) (same y-coordinate).

Answer _____

SHOW YOUR THINKING

3. Plot both pairs of points from problems 1 and 2 and count the grid squares to check your answers.

Coordinate plane. Plot and label the points on the plane below. Then count the grid squares between each pair.



Answer _____

SHOW YOUR THINKING

4. Write each distance on the line.

a. Distance between (5, 9) and (5, −3): _____
b. Distance between (−7, 2) and (8, 2): _____
c. Distance between (−1, −4) and (−1, −16): _____
d. |−11| + |6| = _____
e. Distance between (3, 7) and (3, 20): _____

Answer _____

SHOW YOUR THINKING

5. Two Hydrants. Two hydrants sit at (−9, 4) and (−9, −10) on a city grid where each unit is one meter. Find the distance between them.

Answer _____

SHOW YOUR THINKING

6. Straight Walk. Malia walks straight from (−12, 6) to (7, 6). Each unit is one block. Find how far she walks, then tell which coordinates you used.

Answer _____

SHOW YOUR THINKING

7. Missing Corner. Point R sits at (−5, 11). Point S sits 18 units directly below R. Write the coordinates of point S.

Answer _____

SHOW YOUR THINKING

8. Andre found the distance from (4, −8) to (4, 5) by subtracting 5 from 8 and writing 3 units. Explain the mistake, then show the correct distance.

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

9. Find the distance from (7, 1) to (7, 12).

Answer _____ units

SHOW YOUR THINKING

10. Find the distance from (−8, 3) to (4, 3).

Answer _____ units

SHOW YOUR THINKING

11. Same Side. Find the distance from (−5, −2) to (−5, −11).

Answer _____ units

SHOW YOUR THINKING

12. Find the Mistake. For (2, 6) to (2, −4), Tom wrote 2 units. Explain the mistake.

Answer _____ the mistake and the distance

EXPLAIN WITH MATHEMATICAL EVIDENCE

Spiral review

13. From Lesson 7-5 Session 2. Reflect (−2, 7) across the y-axis.

Answer _____

SHOW YOUR THINKING

14. From Lesson 6-8 Session 1. Simplify 6(m + 1) + 2m.

Answer _____

SHOW YOUR THINKING

15. From Lesson 4-4 Session 1. Find 85% of 200.

Answer _____

SHOW YOUR THINKING

Test practice

16. The distance from (0, 5) to (0, −5) is —

□ A. 5	□ B. 0
□ C. 10	□ D. 25

17. Two points with the same y-value lie on a —

- □ A. circle
- □ B. vertical line
- □ C. diagonal
- □ D. horizontal line

18. The distance from (−9, 2) to (−3, 2) is —

□ A. 6	□ B. 12
□ C. −6	□ D. 27

Check and revise

CHECK YOUR MATHEMATICS	HOW DID IT GO?
The horizontal or vertical shortcut applies when one coordinate is the same. Every part answered / Work shown / Units labeled when needed	I can do this: Independently / With a hint / With help Question to revisit: _____

One correction or question I want to discuss: _____

Check signs, scale, and labels. Use a number line or coordinate grid to verify one response.